CLAIMS

We claim:

1. Use of epothilone B in the manufacture of a medicament for the treatment of solid tumour with a reduced occurrence of drug-induced diarrhoea in a selected patient population, wherein the patient population is selected on the basis of the gene expression profile of the patients, wherein the gene expression profile comprises the gene expression pattern of one or more genes that are predictive of the occurrence of diarrhoea in a patient following administration of epothilone B.

2. A method for predicting diarrhoea in a subject to whom a microtubule stabilizing agent is to be administered, comprising the steps of:
   (a) obtaining the gene expression profile of the subject, wherein the gene expression profile comprises the gene expression pattern of one or more genes, where the expression patterns of the one or more genes are predictive of the occurrence of diarrhoea in a subject following administration of a microtubule stabilizing agent;
   (b) determining whether the subject is at risk for diarrhoea from the administration of the microtubule stabilizing agent.

3. The method of claim 2, wherein the prediction occurs prior the administration of the agent to the patient.

4. The method of claim 2, wherein the prediction occurs during the course of drug therapy.

5. The method of any one of claims 2 to 4, wherein the gene expression pattern is the higher than normal expression of the gene for Interferon regulatory factor 5 (IRF5).

6. The method of any one of claims 2 to 4, wherein the gene expression pattern is the lower than normal expression of one or more genes selected from the group consisting of group consisting of Cell division cycle 34 (CDC34); BCL2/adenovirus E1B 19kDa interacting protein 3-like (BNIP3L); Tubulin, beta; 2,3-bisphosphoglycerate mutase (BPGM); Aminolevulinate, delta-, synthase 2 (ALAS2); Selenium binding protein 1 (SELENBP1); and Solute carrier family 4, anion exchanger, member 1 (erythrocyte membrane protein band 3, Diego blood group) (SLC4A1).

7. The method of any one of claims 2 to 4, wherein the gene expression pattern is the increased expression of one or more genes following administration of the microtubule stabilizing agent as compared with the expression of a gene prior to the administration of the microtubule stabilizing agent, wherein the gene is selected from the group consisting of Surfeit 2 (SURF2); Transmembrane 9 superfamily member 1 (TM9SF1); death-associated protein kinase 1 (DAPK1); RAP1A, a member of RAS oncogene family (RAP1A); down-regulator of transcription 1 (DR1); Janus kinase 1 (JAK1); tubulin, alpha (K-ALPHA-1) and zinc finger protein 36, C3H type, homolog (ZFP36).

8. The method of any one of claims 2 to 4, wherein the gene expression pattern is the decreased expression of one or more genes following administration of the microtubule stabilizing agent as compared with the expression of a gene prior to the administration of the microtubule stabilizing agent, wherein the gene is selected from the group consisting of nuclear transcription factor Y, alpha; Transcription factor-like 4 (TCFL4) and mitogen-activated protein kinase kinase kinase kinase 2 (MAP4K2).

9. A method for predicting diarrhoea in a subject to whom a microtubule stabilizing agent is to be administered, comprising the steps of:

(a) determining whether the subject expresses the Diego blood type; and

(b) determining whether the subject is at risk for diarrhoea following the administration of the microtubule stabilizing agent.

10. A method for predicting diarrhoea in a subject to whom a microtubule stabilizing agent is to be administered, comprising the steps of:

(a) determining whether the subject has a lower than normal haematological levels as determined by haematological assays selected from the group consisting of haematocrit and haemoglobin levels; and

(b) determining whether the subject is at risk for diarrhoea following the administration of the microtubule stabilizing agent.

11. The method of any of claims 2-10, further comprising the steps of:

(c) determining the appropriate therapy for the subject from the group consisting of (1) altering the dose of the drug, (2) providing additional or alternative concomitant medication; and (3) choosing not to prescribe that drug for that subject.

12. A kit for use in predicting diarrhoea in a subject to whom a microtubule stabilizing agent is to be administered, comprising:

(a) a reagent for detecting the gene expression pattern of one or more genes, wherein the one or more genes are selected from the group consisting of:

(1) Interferon regulatory factor 5 (IRF5);

(2) Cell division cycle 34 (CDC34); BCL2/adenovirus E1B 19kDa interacting protein 3-like (BNIP3L); Tubulin, beta (GenBank Accession Number V00599); 2,3-bisphosphoglycerate mutase (BPGM); Aminolevulinate, delta-, synthase 2 (ALAS2); Selenium binding protein 1 (SELENBP1); and Solute carrier family 4, anion exchanger, member 1 (erythrocyte membrane protein band 3, Diego blood group) (SLC4A1);

(3) Surfeit 2 (SURF2); Transmembrane 9 superfamily member 1 (TM9SF1); death-associated protein kinase 1 (DAPK1); RAP1A, a member of RAS oncogene family (RAP1A); down-regulator of transcription 1 (DR1); Janus kinase 1 (JAK1); tubulin, alpha (K-ALPHA-1) and zinc finger protein 36, C3H type, homolog (ZFP36); and

(4) nuclear transcription factor Y, alpha (GenBank Accession Number AL031778); Transcription factor-like 4 (TCFL4) and mitogen-activated protein kinase kinase kinase kinase 2 (MAP4K2).

(b) a container for the reagent; and

(c) a written product on or in the container describing the use of the biomarker in predicting microtubule stabilizing agent-mediated diarrhoea in subjects.

13. The kit of claim 12, wherein the reagent is a gene chip.

14. A kit for use in predicting diarrhoea in a subject to whom a microtubule stabilizing agent is to be administered, comprising:

(a) a reagent for detecting the Diego blood type;

(b) a container for the reagent; and

(c) a written product on or in the container describing the use of the Diego blood type as a biomarker in predicting microtubule stabilizing agent-mediated diarrhoea in subjects.

15. A kit for use in predicting diarrhoea in a subject to whom a microtubule stabilizing agent is to be administered, comprising:

(a) reagents for haematological assays selected from the group consisting of haematocrit and haemoglobin levels;

(b) a container for the reagents; and

(c) a written product on or in the container describing the results of haematological assays as biomarkers in predicting microtubule stabilizing agent-mediated diarrhoea in subjects.